# (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

## (19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 19 February 2004 (19.02.2004)

PCT

### (10) International Publication Number WO 2004/015767 A1

(51) International Patent Classification7: H01L 23/367, 23/495, 25/065

(21) International Application Number:

PCT/SG2002/000170

(22) International Filing Date:

30 July 2002 (30.07.2002)

(25) Filing Language:

English

(26) Publication Language:

English

- (71) Applicant (for all designated States except US): IN-FINEON TECHNOLOGIES AG [DE/DE]; St.-Martin-Strasse 53, 81669 Munich (DE).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): FERNANDEZ, Elstan, Anthony [IN/SG]; Blk 105 Aljunied Crescent, #02-221, Singapore 380105 (SG).
- (74) Agent: WATKIN, Timothy, Lawrence, Harvey; Lloyd Wise, Tanjong Pagar, P.O. Box 636, Singapore 910816 (SG).

- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Declaration under Rule 4.17:

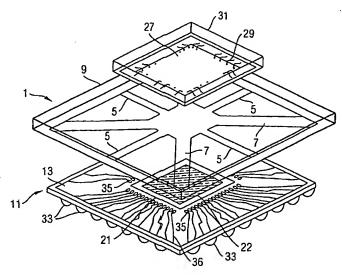
of inventorship (Rule 4.17(iv)) for US only

#### Published:

- with international search report
- with amended claims

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

## (54) Title: HEAT DISSIPATION DEVICE FOR INTEGRATED CIRCUITS



(57) Abstract: An integrated circuit (27, 67) is packaged by mounting it onto a substrate (11, 55) with a heat conductive plate (1, 41) interposed between the integrated circuit (27, 67) and the substrate (11, 55). The plate (1, 41) has portions (5, 7, 9) extending laterally out from under the integrated circuit, and these portions conduct away heat generated by the integrated circuit (27, 67). The plate (1, 41) may be connected to ground, and be connected by wire bonding to pads of the integrated circuit (27, 67) which are to be grounded. In one arrangement, the plate (1) may be located above a second integrated circuit such as a flipchip (22). In another arrangement, a plurality of integrated circuits (67) may be connected to the substrate (55) via the plate (41), and the substrate (55) and plate (41) singulated together to form a plurality of packages.